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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,861	03/16/2004	Hiroki Nakamura	250442US2	1575

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EXAMINER

SEMENENKO, YURIY

ART UNIT PAPER NUMBER

2841

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/800,861	<b>Applicant(s)</b> NAKAMURA, HIROKI	
	<b>Examiner</b> Yuriy Semenenko	<b>Art Unit</b> 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 6-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>05/12/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1.1. Applicant's election with traverse of Group I Claims 1-5, as stated in response to Office Action filed on 07/27/2006 is acknowledged.

1.2. The traversal is on the ground(s) that: "...The claims of the present invention would appear to be part of an overlapping search area...[and] a search and examination of the entire application would not place a serious burden on the Examiner" This is not found persuasive because:

Although the inventions all groups are related to each other, but inventions are distinct, as explained in letter of Restriction and /or Election, filing date 06/30/2006. Therefore, no further explanation or proof is necessary. The election of one invention following a requirement for restriction is mandatory even though applicant disagrees with the examiner.

The requirement is still deemed proper and is therefore made FINAL.

1.3. Claims 1-5 are under consideration. Claims 6-15 have been withdrawn from consideration.

Claims 1-15 are now pending in the application.

### ***Specification***

2. The disclosure is objected to because of the following informalities:

Page 1, line 24: Improper term "the stress migration". Unclear what applicant means as "the stress migration".

Appropriate correction is required.

***Claim Objections***

3. Claim 4 is objected to for improper antecedent.

Claim 4, line 2: the limitation "the scanning lines" should be changed to – scanning lines- for proper antecedence basis.

Claim 4, line 2: the limitation "the data lines" should be changed to – data lines- for proper antecedence basis.

Claim 5, line 1: the limitation "a wiring according to claim 4" should be changed to – the wiring according to claim 4- for proper antecedence basis.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4.1. Claims 1-3 are rejected under 35U.S.C. 103(a) as being unpatentable over Ueno et al. (PGPub # 2003/0008975) hereinafter Ueno in view of Yamato (Patent # 6388201) hereinafter Yamato.

As to claim 1: Ueno discloses in Fig. 3 a wiring, comprising: a first metal diffusion-preventing layer 15 formed on a substrate (page 3, [0037]); a metal wiring layer 11; and a second metal diffusion-preventing layer 29, Fig. 4 (page 5, [0060]) covering the exposed surface the metal wiring layer, wherein the metal wiring layer 11 are surrounded by the first metal diffusion-preventing layer 15 and the second metal diffusion-preventing layer 29, Fig. 4.

except, Ueno doesn't explicitly teach two things:

1. a metal seed layer formed on the first metal diffusion-preventing layer; and a metal wiring layer formed on the metal seed layer;
2. a second metal diffusion-preventing layer covering the exposed surface including the side surface of the multilayered structure having the metal seed layer and the metal wiring layer;

Ueno discloses also discloses in the "Background of the invention" section, at the time the invention was made, it was well know to use a metal seed layer 17, Fig. 1 formed on the first metal diffusion-preventing layer 15; and a metal wiring layer 11 formed on the metal seed layer 17.

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made, for Ueno to include in his invention that a metal seed layer formed on the first metal diffusion-preventing layer and a metal wiring layer formed on the metal seed layer to improve adhesion metal wiring to metal diffusion-preventing layer.

Yamato discloses in Fig. 6 (e) a second metal diffusion-preventing layer 22 covering the exposed surface including the side surface of the multilayered structure (14, 20).

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made, for Ueno to include in his invention that a second metal

diffusion-preventing layer covering the exposed surface including the side surface of the multilayered structure having the metal seed layer and the metal wiring layer to prevent the conductive layer from being bared, as taught by Yamato (column 9, lines 14-16).

As to claim 2: Ueno discloses in Fig. 3 a wiring, comprising: a first metal diffusion-preventing layer 15 formed on a substrate (page 3, [0037]); a metal wiring layer 11; and a second metal diffusion-preventing layer 29, Fig. 4 (page 5, [0060]) covering the exposed surface the metal wiring layer, wherein the metal wiring layer 11 are surrounded by the first metal diffusion-preventing layer 15 and the second metal diffusion-preventing layer 29, Fig. 4.

except, Ueno doesn't explicitly teach two things:

1. a metal seed layer formed on the first metal diffusion-preventing layer; and a metal wiring layer formed on the metal seed layer;
2. a second metal diffusion-preventing layer covering the exposed surface including the side surface of the multilayered structure having the metal seed layer and the metal wiring layer and the first metal diffusion-preventing layer;

Ueno discloses also discloses in the "Background of the invention" section, at the time the invention was made, it was well know to use a metal seed layer 17, Fig. 1 formed on the first metal diffusion-preventing layer 15; and a metal wiring layer 11 formed on the metal seed layer 17.

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made, for Ueno to include in his invention that a metal seed layer formed on the first metal diffusion-preventing layer and a metal wiring layer formed on the metal seed layer to improve adhesion metal wiring to metal diffusion-preventing layer.

Yamato discloses in Fig. 6 (e) a second metal diffusion-preventing layer 22 covering the exposed surface including the side surface of the multilayered structure (14, 20) having the metal wiring layer 14 and the first metal layer 20.

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made, for Ueno to include in his invention that a second metal

diffusion-preventing layer covering the exposed surface including the side surface of the multilayered structure having the metal seed layer and the metal wiring layer and the first metal diffusion-preventing layer to prevent the conductive layer from being bared, as taught by Yamato (column 9, lines 14-16).

As to claim 3: Ueno discloses in Fig. 3 a wiring, comprising: a first metal diffusion-preventing layer 15 formed on a substrate (page 3, [0037]); a metal wiring layer 11 formed on the first metal diffusion-preventing layer 15; and a second metal diffusion-preventing layer 29, Fig. 4 (page 5, [0060]) covering the exposed surface the metal wiring layer and the first metal diffusion-preventing layer 15, wherein the metal wiring layer 11 are surrounded by the first metal diffusion-preventing layer 15 and the second metal diffusion-preventing layer 29, Fig. 4.

except, Ueno doesn't explicitly teach a second metal diffusion-preventing layer covering the exposed surface including the side surface of the multilayered structure having the metal seed layer and the metal wiring layer and the first metal diffusion-preventing layer;

Yamato discloses in Fig. 6 (e) a second metal diffusion-preventing layer 22 covering the exposed surface including the side surface of the multilayered structure (14, 20) having the metal wiring layer 14 and the first metal layer 20.

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made, for Ueno to include in his invention that a second metal diffusion-preventing layer covering the exposed surface including the side surface of the multilayered structure having the metal wiring layer and the first metal diffusion-preventing layer to prevent the conductive layer from being bared, as taught by Yamato (column 9, lines 14-16).

4.2. Claims 4-5 are rejected under 35U.S.C. 103(a) as being unpatentable over Kato (PGPub. #2002/0030978) hereinafter Kato in view of Ueno.

As to claim 4: Kato discloses in Fig. 1 a display device 100 having at least one of a wiring 3, comprising electrodes (margin region 31a, 32a, 311, 325 Fig. 1, 2 and page 3, [0032] and [0036]) of driving elements 41, 42 arranged to form a matrix, the scanning lines 311, the data lines 325 connected to the driving element.

except, Kato doesn't explicitly teach electrodes of driving elements being surrounded by a first metal diffusion-preventing layer and a second metal diffusion-preventing layer.

Ueno discloses in Fig. 3 a wiring, comprising: a first metal diffusion-preventing layer 15 formed on a substrate (page 3, [0037]); a metal wiring layer 11; and a second metal diffusion-preventing layer 29, Fig. 4 (page 5, [0060]) covering the exposed surface the metal wiring layer.

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made, for Kato to include in his invention that electrodes of driving elements being surrounded by a first metal diffusion-preventing layer and a second metal diffusion-preventing layer to prevent degradation of the electrodes.

As to claim 5: Kato, as modified, discloses the display device having a wiring according to claim 4, wherein a transparent conductor layer 311 (page 3, [0032]) is formed on the wiring (margin region 31a, 311, Fig. 1, 2 and page 3, [0036]) with the second metal diffusion-preventing layer interposed therebetween.

except, Kato doesn't explicitly teach the second metal diffusion-preventing layer interposed therebetween.

Ueno discloses in Fig. 3 a wiring, comprising: a first metal diffusion-preventing layer 15 formed on a substrate (page 3, [0037]); a metal wiring layer 11; and a second metal diffusion-preventing layer 29, Fig. 4 (page 5, [0060]) covering the exposed surface the metal wiring layer.

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made, for Kato to include in his invention that the second metal diffusion-preventing layer interposed therebetween to prevent degradation of the electrodes.




5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuriy Semenenko whose telephone number is (571) 272-6106. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean A. Reichard can be reached on (571)- 272-2800 ext. 31.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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9/18/06